PA Scoresheets

DRAFT
NOV 06 1990

Site Name: Crescent
Date: 9/30/91

8

GROUND WATER PATHWAY SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Ground Water Pathway Criteria List, page 7)?	Yes X No ___
Is the site located in karst terrain?	Yes ___ No X
Depth to aquifer:	141 ft
Distance to the nearest drinking-water well:	2640 ft

LIKELIHOOD OF RELEASE	A Suspected Release	B No Suspected Release	References
1. SUSPECTED RELEASE: If you suspect a release to ground water (see page 7), assign a score of 550, and use only column A for this pathway.	550		
2. NO SUSPECTED RELEASE: If you do not suspect a release to ground water, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Use only column B for this pathway.			
LR =	550		

TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people served by drinking water from wells that you suspect have been exposed to hazardous substances from the site (see Ground Water Pathway Criteria List, page 7). ___ people x 10 =	0		
4. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water from wells that you do NOT suspect have been exposed to hazardous substances from the site, and assign the total population score from PA Table 2. Are any wells part of a blended system? Yes X No ___ If yes, attach a page to show apportionment calculations.	4591		
5. NEAREST WELL: If you have identified any Primary Targets for ground water, assign a score of 50; otherwise, assign the highest Nearest Well score from PA Table 2. If no drinking-water wells exist within 4 miles, assign a score of zero.	9		
6. WELLHEAD PROTECTION AREA (WHPA): Assign a score of 20 if any portion of a designated WHPA is within ¼ mile of the site; assign 5 if from ¼ to 4 miles.	0		
7. RESOURCES: A score of 5 is assigned.	5	5	
T =	4605		

WASTE CHARACTERISTICS		
8. A. If you have identified any Primary Targets for ground water, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	18	
B. If you have NOT identified any Primary Targets for ground water, assign the waste characteristics score calculated on page 4.	18	
WC =	18	

GROUND WATER PATHWAY SCORE: $\frac{LR \times T \times WC}{82{,}500}$ = 100

Site Name: Crescent
Date: 9/30/91

DRAFT

NOV 03 1990

PA TABLE 2: VALUES FOR SECONDARY GROUND WATER TARGET POPULATIONS

PA Table 2a: Non-Karst Aquifers

Distance from Site	Population	Nearest Well (choose highest)	Population Served by Wells Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	Population Value
0 to ¼ mile	0	20	1	2	5	16	52	163	521	1,633	5,214	16,325	0
> ¼ to ½ mile	0	18	1	1	3	10	32	101	323	1,012	3,233	10,121	0
> ½ to 1 mile	26,179	(9)	1	1	2	5	17	52	167	522	(1,668)	5,224	1668
> 1 to 2 miles	64,044	5	1	1	1	3	9	29	94	294	(939)	2,938	939
> 2 to 3 miles	45,525	3	1	1	1	2	7	21	68	212	678	2,122	678
> 3 to 4 miles	112,459	2	1	1	1	1	4	13	42	131	417	(1,306)	1306
Nearest Well =		9										Score =	4591

PA Table 2b: Karst Aquifers

N/A

Distance from Site	Population	Nearest Well (use 20 for karst)	Population Served by Wells Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	Population Value
0 to ¼ mile		20	1	2	5	16	52	163	521	1,633	5,214	16,325	
> ¼ to ½ mile		20	1	1	3	10	32	101	323	1,012	3,233	10,121	
> ½ to 1 mile		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 1 to 2 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 2 to 3 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
> 3 to 4 miles		20	1	1	3	8	26	82	261	816	2,607	8,162	
Nearest Well =												Score =	

DRAFT

NOV 06 1990

Site Name: Crescent

Date: 9/30/91

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Surface Water Pathway Criteria List, page 11)?	Yes ___ No X
Distance to surface water:	1500 ft
Flood Frequency:	0 yrs
What is the downstream distance to the nearest drinking-water intake? .05 miles	
nearest fishery? 2 miles nearest sensitive environment? .05 miles	

LIKELIHOOD OF RELEASE

	A Suspected Release	B No Suspected Release	References
1. SUSPECTED RELEASE: If you suspect a release to surface water (see page 11), assign a score of 550, and use only column A for this pathway.	(550)		
2. NO SUSPECTED RELEASE: If you do not suspect a release to surface water, and the distance to surface water is 2,500 feet or less, assign a score of 500; otherwise, assign a score from the table below. Use only column B for this pathway.		(500, 400, 300 or 100) 100	
LR =	(550)	(500, 400, 300 or 100) 100	

Floodplain	Score
Site in annual or 10-yr floodplain	500
Site in 100-yr floodplain	400
Site in 500-yr floodplain	300
Site outside 500-yr floodplain	100

DRINKING WATER THREAT TARGETS

3. Determine the water body types, flows (if applicable), and number of people served by all drinking-water intakes within the 15-mile target distance limit. If there are no drinking-water intakes within the target distance limit, assign a total Targets score of 5 at the bottom of this page (Resources only) and proceed to page 14.

Intake Name	Water Body Type	Flow	People Served
		___cfs	
		___cfs	
		___cfs	

4. PRIMARY TARGET POPULATION: If you suspect any drinking-water intake listed above has been exposed to hazardous substances from the site (see Surface Water Pathway Criteria List, page 11), list the intake name(s) and calculate the factor score based on the number of people served.

___, ___,

___ people x 10 =

5. SECONDARY TARGET POPULATION: Determine the Secondary Target Population score from PA Table 3 based on the populations using drinking-water from intakes that you do NOT suspect have been exposed to hazardous substances from the site.

n/a

Are any intakes part of a blended system? Yes ___ No ___
If yes, attach a page to show apportionment calculations.

6. NEAREST INTAKE: If you have identified any Primary Targets for the drinking water threat (Factor 4), assign a score of 50; otherwise, assign a score of zero. If no drinking-water intake exists within the 15-mile target distance limit, assign a score of zero.

7. RESOURCES: A score of 5 is assigned.

		0
	(50, 20, 10, 2, 1, or 0)	(20, 10, 2, 1, or 0) 0
	(5) 5	(5) 5
T =		5

Site Name: Crescent
Date: 9/30/91

DRAFT NOV 06 1990

PA TABLE 3: VALUES FOR SECONDARY SURFACE WATER TARGET POPULATIONS N/A

Surface Water Body Flow Characteristics (see PA Table 4)	Population	Nearest Intake (choose highest)	Population Served by Intakes Within Flow Category											Population Value
			1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	
< 10 cfs	_____	20	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,248	_____
10 to 100 cfs	_____	2	1	1	2	5	16	52	163	521	1,633	5,214	16,325	_____
> 100 to 1,000 cfs	_____	1	0	0	1	1	2	5	16	52	163	521	1,633	_____
> 1,000 to 10,000 cfs	_____	0	0	0	0	0	1	1	2	5	16	52	163	_____
> 10,000 cfs or Great Lakes	_____	0	0	0	0	0	0	0	1	1	2	5	16	_____
3-mile Mixing Zone	_____	10	1	3	8	26	82	261	816	2,607	8,162	26,068	81,663	_____

Nearest Intake = _____

Score = _____

PA TABLE 4: SURFACE WATER TYPE / FLOW CHARACTERISTICS WITH DILUTION WEIGHTS FOR SECONDARY SURFACE WATER SENSITIVE ENVIRONMENTS

Type of Surface Water Body			Dilution Weight
Water Body Type	OR	Flow Characteristics	
minimal stream		flow less than 10 cfs	1
small to moderate stream		flow 10 to 100 cfs	0.1
moderate to large stream		flow greater than 100 to 1,000 cfs	N/A
large stream to river		flow greater than 1,000 to 10,000 cfs	N/A
large river		flow greater than 10,000 cfs	N/A
3-mile mixing zone of quiet flowing streams or rivers		flow 10 cfs or greater	N/A
coastal tidal water (harbors, sounds, bays, etc.), ocean, or Great Lakes		N/A	N/A

DRAFT

NOV 06 1990

Site Name: *Crescent*
Date: *9/30/91*

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT SCORESHEET

LIKELIHOOD OF RELEASE

	A: Suspected Release	B: No Suspected Release	References
Enter the Surface Water Likelihood of Release score from page 12. LR =	(550)	(500,400,300 or 100) *100*	

HUMAN FOOD CHAIN THREAT TARGETS

8. Determine the water body types and flows (if applicable) for all fisheries within the 15-mile target distance limit. If there are no fisheries within the target distance limit, assign a Targets score of 0 at the bottom of this page and proceed to page 15. *The surface water drainage from the Crescent site is greatly restricted and therefore no fisheries targeted*

Note

Fishery Name	Water Body Type	Flow
(see above)		cfs
		cfs
		cfs
		cfs
		cfs

9. PRIMARY FISHERIES: If you suspect any fishery listed above has been exposed to hazardous substances from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 10. List the Primary Fisheries:
(see above "note")

A: (300 or 0) *0*

10. SECONDARY FISHERIES: If you have not identified any Primary Fisheries, assign a Secondary Fisheries score from the table below using the LOWEST flow at any fishery within the 15-mile target distance limit.

Lowest Flow	Secondary Fisheries Score
< 10 cfs	210
10 to 100 cfs	30
>100 cfs, coastal tidal waters, oceans, or Great Lakes	12

A: (210,30,12 or 0) *0* B: (210,30,12 or 0)

T = A: (300,210,30,12 or 0) *0* B: (210,30,12 or 0)

DRAFT

NOV 06 1990

Site Name: Crescent
Date: 9/30/91

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT SCORESHEET

LIKELIHOOD OF RELEASE	A Suspected Release	B No Suspected Release	References
Enter the Surface Water Likelihood of Release score from page 12. LR =	(550)	(500, 400, 300 or 100) 100	

ENVIRONMENTAL THREAT TARGETS

11. Determine the water body types and flows (if applicable) for all surface water sensitive environments within the 15-mile target distance limit (see PA Tables 4 and 5). If there are no sensitive environments within the 15-mile target distance limit, assign a Targets score of 0 at the bottom of this page, and proceed to page 17. NOTE: Surface water Drainage from the site is greatly Restricted and therefore No wetlands targeted

Environment Name	Water Body Type	Flow
(see above)		cfs
		cfs
		cfs
		cfs
		cfs

12. PRIMARY SENSITIVE ENVIRONMENTS: If you suspect any sensitive environment listed above has been exposed to hazardous substances from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 13. List the Primary Sensitive Environments:

_____, _____,
_____, _____.

(300 or 0) — 9/30/91 — 0

13. SECONDARY SENSITIVE ENVIRONMENTS:

A. For Secondary Sensitive Environments on surface water bodies with flows of 100 cfs or less, assign scores as follows, and do not evaluate part B of this factor: (see above note)

Flow	Dilution Weight (PA Table 4)		Environment Type and Value (PA Tables 5 and 6)		Total
cfs		x		=	
cfs		x		=	
cfs		x		=	
cfs		x		=	
cfs		x		=	

Sum = 0

B. If NO Secondary Sensitive Environments are located on surface water bodies with flows of 100 cfs or less, assign a score of 10.

(10 or 0) — (10 or 0) 0

T = 0

DRAFT

NOV 06 1990

Site Name: Crescent
Date: 9/30/91

SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACTERISTICS	A *Suspected Release*	B *No Suspected Release*
14. A. If you have identified ANY Primary Targets for surface water (pages 12, 14, or 15), assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	(100 or 32)	
B. If you have NOT identified any Primary Targets for surface water, assign the waste characteristics score calculated on page 4.	(100,32, or 18)	(100,32, or 18) 18
WC =		18

SURFACE WATER PATHWAY THREAT SCORES

Threat	*Likelihood of Release (LR) Score (from page 12)*	*Targets (T) Score*	*Pathway Waste Characteristics (WC) Score (determined above)*	*Threat Score LR x T x WC / 82,500*
Drinking Water	100	5	18	(subject to a maximum of 100) 0.11
Human Food Chain	100	0	18	(subject to a maximum of 100) 0
Environmental	100	0	18	(subject to a maximum of 60) 0

SURFACE WATER PATHWAY SCORE
(Drinking Water Threat + Human Food Chain Threat + Environmental Threat)

(subject to a maximum of 100) 0.11

DRAFT

NOV 0 3 1990

Site Name: Cimarron
Date: 9/30/91

SOIL EXPOSURE PATHWAY SCORESHEET

Pathway Characteristics		
Do any people live on or within 200 ft of areas of suspected contamination?	Yes ___	No ✓
Do any people attend school or day care on or within 200 ft of areas of suspected contamination?	Yes ___	No ✓
Is the facility active? Yes X No ___ If yes, estimate the number of workers: approx. 200		

	A Suspected Contamination	B No Suspected Contamination	References
LIKELIHOOD OF EXPOSURE			
1. SUSPECTED CONTAMINATION: Surficial contamination is assumed. A score of 550 is assigned. LE =	550		
RESIDENT POPULATION THREAT TARGETS			
2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or day care on or within 200 feet of areas of suspected contamination (see Soil Exposure Pathway Criteria List, page 18). ___ people x 10 =	0		
3. RESIDENT INDIVIDUAL: If you have identified any Resident Population (Factor 2), assign a score of 50; otherwise, assign a score of 0.	0		
4. WORKERS: Assign a score from the following table based on the total number of workers at the facility and nearby facilities with suspected contamination:	10		
5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Assign a value from PA Table 7 for each terrestrial sensitive environment that is located on an area of suspected contamination: Sum =	0		
6. RESOURCES: A score of 5 is assigned.	5		
T =	15		
WASTE CHARACTERISTICS			
7. Assign the waste characteristics score calculated on page 4. WC =	18		

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10
>1,000	15

Terrestrial Sensitive Environment Type	Value

RESIDENT POPULATION THREAT SCORE: $\frac{LE \times T \times WC}{82,500}$ = 1.8

NEARBY POPULATION THREAT SCORE:
Assign a score of 2 = 2

SOIL EXPOSURE PATHWAY SCORE:
Resident Population Threat + Nearby Population Threat = 3.8

DRAFT

NOV 08 1990

Site Name: Crescent
Date: 9/30/91

22

AIR PATHWAY SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Air Pathway Criteria List, page 21)?	Yes ___ No ✓
Distance to the nearest individual:	0 ft

	A Suspected Release	B No Suspected Release	References
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to air (see page 21), assign a score of 550, and use only column A for this pathway.	[550]		
2. NO SUSPECTED RELEASE: If you do not suspect a release to air, assign a score of 500, and use only column B for this pathway.		[500] 500	___
LR =		500	___
TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people subject to exposure from a release of hazardous substances through the air (see Air Pathway Criteria List, page 21). ___ people x 10 =			
4. SECONDARY TARGET POPULATION: Determine the number of people within the 4-mile target distance limit, and assign the total population score from PA Table 8.		97	___
5. NEAREST INDIVIDUAL: If you have identified any Primary Targets for the air pathway, assign a score of 50; otherwise, assign the highest Nearest Individual score from PA Table 8.	[50, 20, 7.2.1, or 0]	[20, 7.2.1, or 0] 20	___
6. PRIMARY SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (PA Table 5) and wetland acreage values (PA Table 9) for environments subject to exposure from air hazardous substances (see Air Pathway Criteria List, page 21).			___
7. SECONDARY SENSITIVE ENVIRONMENTS: Use PA Table 10 to determine the score for secondary sensitive environments.		0	___
8. RESOURCES: A score of 5 is assigned.	[5] 5	[5] 5	___
T =		122	
WASTE CHARACTERISTICS			
9. A. If you have identified any Primary Targets for the air pathway, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.	[100 or 32]		
B. If you have NOT identified any Primary Targets for the air pathway, assign the waste characteristics score calculated on page 4.	[100, 32, or 18]	[100, 32, or 18] 18	
WC =		18	

AIR PATHWAY SCORE:

$$\frac{LR \times T \times WC}{82{,}500}$$

[subject to a maximum of 100] 13.31

Site Name: Crescent
Date: 9/30/91

DRAFT NOV 06 1990

PA TABLE 8: VALUES FOR SECONDARY AIR TARGET POPULATIONS

Distance from Site	Population	Nearest Individual (choose highest)	Population Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	1,000,001 to 3,000,000	Population Value
Onsite	200	20	1	2	5	16	52	163	521	1,633	5,214	16,325	52,136	163,248	16
>0 to ¼ mile	0	20	1	1	1	4	13	41	130	408	1,303	4,081	13,034	40,811	0
>¼ to ½ mile	1,287	2	0	0	1	1	3	9	28	88	282	882	2,815	8,815	9
>½ to 1 mile	10,131	1	0	0	0	1	1	3	8	26	83	261	834	2,612	26
>1 to 2 miles	41,853	0	0	0	0	0	1	1	3	8	27	83	266	833	27
>2 to 3 miles	60,566	0	0	0	0	0	1	1	1	4	12	38	120	376	12
>3 to 4 miles	72,995	0	0	0	0	0	0	1	1	2	7	23	73	229	7

Nearest Individual = 20

Score = 97

PA TABLE 9: AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
Less than 1 acre	0
1 to 50 acres	25
Greater than 50 to 100 acres	75
Greater than 100 to 150 acres	125
Greater than 150 to 200 acres	175
Greater than 200 to 300 acres	250
Greater than 300 to 400 acres	350
Greater than 400 to 500 acres	450
Greater than 500 acres	500

PA TABLE 10: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY SECONDARY SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from PA Table 8 or 9)	Product
Onsite	0.10	x 0 Pond / POW, Palustrine / Lacustrine	0
		x	
0-1/4 mi	0.025	x	
		x	
		x	
1/4-1/2mi	0.0054	x	
		x	
		x	
		x	

Total Environments Score = 0

DRAFT NOV 06 1990 CONFIDENTIAL - NOT FOR PUBLIC RELEASE

Site Name: Crescent
Date: 9/30/91

SITE SCORE CALCULATION

	S	S^2
GROUND WATER PATHWAY SCORE (S_{gw}):	100	10000.00
SURFACE WATER PATHWAY SCORE (S_{sw}):	.11	.0121
SOIL EXPOSURE PATHWAY SCORE (S_{se}):	3.8	14.44
AIR PATHWAY SCORE (S_a):	13.31	177.13
SITE SCORE:	$\sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_{se}^2 + S_a^2}{4}}$ =	50.48